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THE LAW OF THE VALUE OF MONEY.

The value of money is fixed by the same laws as those which govern the value of other commodities,—the laws of supply and demand, as influenced by cost of production. The application of these laws and their interpretation is more difficult, however, in the case of metallic money than in that of other commodities, because the terms which express value are themselves terms of money. As money is the usual measure of value, and the standard with which other values are compared, it is difficult to find simple forms of expression for measuring the measure, for comparing the standard. The difficulty is made greater by the fact that the intellectual conception of value is that of a ratio rather than a tangible property. It is not possible to point to an object and say that it contains value in a definite amount, as it may be said that it possesses length or breadth or weight. The value relates to the comparison with some other object, which may be constantly changing, and is not a comparison of visible qualities, but of the intellectual conception of the utility of the object.¹

The utility of diverse objects is measured by a common denominator whose units are expressed in money. When the attempt is made, therefore, to determine the value of money, the determination can only be made by comparison with some other object or series of objects, or by some general intellectual conception. Changes in demand and therefore in the utility of most commodities manifest themselves by means of prices. A diminishing demand leaves excessive visible supplies upon the market, lowers prices, and suggests the wisdom of reducing production. The case is

¹ "Naturally, as valuation itself is a less definite conception than the length or weight of a thing, money can measure less absolutely the value of the thing than the meter does for length or the kilogram for weight."—Beaure, *Théorie et Pratique de la Monnaie*, p. 17.

different with metallic money, since the fall in its price is expressed only in the enhanced prices of other commodities, and by reason of its high exchangeability, there never appears to be a supply upon the market which cannot be disposed of for its full value. As the condition is expressed by M. Babelon:¹

"For iron, lead, copper and coal there are variable quotations in the market upon which they are offered. If they are too abundant, if their outlet is closed, if competition develops, their price falls, the manager of the mine sees his profits diminish and the marketing of his products become more difficult. If he finds he is making a loss, he is forced to abandon the mine or to await at his own risk the return of better days. Quite otherwise is the situation of the producer of the monetary metal. As he has the capacity of converting into cash of legal tender power (*à cours forcé*) all the metal which he draws from his mine, he has always an assured outlet for his products; there is neither rise nor fall for his pieces of twenty francs, whatever the number which he may have struck."

The value of money is determined in precisely the same manner as the value of wheat, or iron, or houses. It is only the forms of expressing this value, and the differences in the character of the demand, which offer difficulties. The immediate influence which operates upon the value of money and upon the value of other things is the relation between the supply and the demand. In the case of money, changes in the demand have much more influence than changes in the supply. The supply of the precious metals over any two short intervals of time is a nearly fixed quantity, increasing in only small proportions from year to year, while the demand varies within the widest limits. The demand for money is much like the demand for wheat in the produce exchange markets. It is not a demand for consumption, but for the fulfillment of certain contracts. When business is normal and solvent, these contracts largely balance each other. An individual having contracted to pay certain sums of money, finds them offset by sums which

¹ *Les Origines de la Monnaie*, p. 285.

others have contracted to pay him, just as the wheat broker finds his contracts to deliver wheat offset by the contracts which he holds for the delivery of wheat to him. The situation of a bank is similar. The banker is able to calculate how far under normal conditions his contracts to deliver money will be offset by contracts for the delivery of money to him. Only the differences or margins, just as on the produce and stock exchanges, have to be settled by the actual delivery of money.

While money has, therefore, come to have in modern society a somewhat restricted use, it is an error to treat credit operations as entirely independent of money. The reaction against the mercantile theory has led some writers to lay too much emphasis upon the conception that the precious metals are only the sign and representatives of wealth and not a part of its substance. They are such a sign only in the same sense that every other commodity is a sign and representative of wealth. Every commodity or service represents the means of obtaining other commodities and services in exchange. In this sense wheat is a sign and representative of wealth in the same manner as money, because it gives command over other goods and services.

The respect in which the precious metals differ from other commodities is one of degree and not of kind. They possess the highest degree of exchangeability. Gold and silver have become in developed commercial countries the material of money by the operation of a branch of the law of marginal utility,—the law that the object most useful for a given purpose in any community will gradually exclude the use of other objects. The evolution of money began with the perception of degrees of salability of commodities. Goods vary greatly in their degree of salability in time and space. Some must wait a long time for a purchaser before they can be sold at a fair return; others can be sold only in particular markets. Exchange of such goods for those more exchangeable was a step towards the evolution of money.

Perishable goods and those of limited consumption are "merchandise" in the sense of being readily exchangeable, only for the interval that they are in the hands of the dealer. "Money," says M. Favre, "consists at the beginning in objects which might become merchandise. Its mobility is beyond doubt, but that which distinguishes it in a decisive manner from merchandise is the character (admitted in theory, if not a reality) of perpetual movement and absolute mobility,—which exists of itself and not for a transitory period."¹ In the natural contest for such a service the precious metals prevailed by a process of economic selection thus described by Professor Menger:²

"With the extension of traffic in space and with the expansion over ever longer intervals of time of prevision for satisfying material needs, each individual would learn, from his own economic interests, to take good heed that he bartered his less salable goods for those special commodities which displayed, beside the attraction of being highly salable in the particular locality, a wide range of salableness both in time and place. These wares would be qualified by their costlessness, easy transportability, and fitness for preservation (in connection with the circumstance of their corresponding to a steady and widely distributed demand), to ensure to the possessor a power, not only 'here' and 'now,' but as nearly as possible unlimited in space and times generally, over all other market goods at economic prices. And so it has come to pass, that as man became increasingly conversant with these economic advantages, mainly by an insight become traditional, and by the habit of economic action, those commodities, which relatively to both space and time are most salable, have in every market become the wares, which it is not only in the interest of every one to accept in exchange for his own less salable goods, but which also are those he actually does readily accept."

Money has attained its present position as a tool of exchange by a process of evolution from less exchangeable commodities. It was, as Professor Menger declares, "the spontaneous outcome, the unpremeditated resultant of particular, individual efforts of the members of a society, who

¹ *La genèse de l'argent*, in *Revue d'économie politique*, April, 1899, xiii, 362.

² "On the Origin of Money," in the *Economic Journal*, June, 1892, ii, 248.

have little by little worked their way to a discrimination of the different degrees of salableness in commodities." Modern political economy tends more and more to appreciate such evolutions rather than to apply abstract standards in the judgement of past ages. It is not surprising, in view of the universal exchangeability of gold and silver, that they were considered, at the dawn of modern commerce, when paper titles were less secure than at present and credit had not reached its full development, as the most desirable form of wealth. As Professor Ingram expresses it, "The old feudal economy, founded principally on dealings in kind, had given way before the new 'money economy,' and the dimensions of the latter were everywhere expanding."¹ Money was for the individual the highest form of wealth, and by a natural error the mercantilists regarded it as the great object of national accumulation. It remained for the modern age to fully accept the view that money, while the most exchangeable form of wealth, is by that very fact the tool of exchanges and not their object. The progress of civilization has developed methods of exchange which have superseded in a large degree the necessity for coined money. But so long as substitutes were not equally efficient, money possessed the pre-eminent qualities thus described by Mr. Smart:²

"Money is the universal commodity; it is the one thing which everybody wants, and of which no one ever has enough; for, in promise and potency, it is almost everything else. Like all tools, it is not desired for itself, but for what it can do. The name which best conveys this is that of 'third commodity,' meaning by this the commodity interposed between the commodities or services which are the real objects of exchange; interposed, for instance, between the goods we make in order to sell and the goods we desire in order to consume."

¹ "A History of Political Economy," p. 38.

² "Studies in Economics," p. 145. Mr. Smart contends that money possesses a character which does not justify its dismissal as a "mere commodity," but with the proper understanding of its use, it is not apparent why the term "commodity" is not applicable.

It is the power of universal exchangeability, almost unlimited in time and space, which makes the precious metals ardently sought in preference to all other goods on special occasions. They have no such preference on ordinary occasions. The man of intelligence who has money does not hoard it in the form of gold and silver. He converts it into consumable goods or productive capital. The contracts which he holds for the delivery of money to him he is willing to deliver to his bank in return for other similar contracts, which he employs to obtain commodities and which are cleared against many other such contracts by the mechanism of modern credit. The value of money, in the sense of its rental value, is less than that of almost any other commodity. A man who has a special use for it in normal times obtains it for two, three, four or six per cent,—a much less rate of profit than is expected from the use of any other capital. It is when the relations between money and other commodities are changed by the abuse of credit that the money market approaches the condition of the produce or stock markets, when many dealers have sold "short" and are unable to obtain the commodities necessary to fulfill their contracts. Such conditions arise in the money market in times of panic, when every man seeks to compel the execution of contracts for the delivery of money to him, and seeks to obtain delay in the enforcement of his contracts to deliver money.

The true law of the value of money is derived from its requirement for the specific uses of settling balances and supplying the medium of small transactions. The value of money has only a remote relation to the whole volume of transactions in normal times. Even when conditions are abnormal,—when a general economic crisis has invoked a panic in the money market,—many instruments of credit continue to supplement the demand for money. Private credit may be so much impaired that the promise of the individual merchant is refused, but so long as confidence

remains unimpaired in banking credits, whether in the form of notes or checks, they supplement the supply of metallic money.

There are two forms of stating the demand for money, both of which relate directly to the question of supply and demand. The simplest meaning of the term, "the value of money," is that of the classical economists, who viewed value as the relation between money and the price of commodities. Money was considered as having an increased value when a given volume exchanged for more goods and a diminished value when it exchanged for fewer goods. A high value for money was translated into low prices and a low value for money into high prices, because in the former case less money was required to obtain a given article and in the latter case more money. The value of money was thus properly defined in its direct relations to other goods.

The "value of money," as used in the money markets, has a different sense, but a sense not without scientific justification. Value in this sense is the price of the rental of money, and it is for rental that money is usually required. A high value of money in this sense means that the discount rate at which money can be borrowed is high; a low value means that the discount rate is low. A high value indicates that the supply of money is small in proportion to demand and a low value that the supply is large. Such conditions tend to affect the value of money in the other sense,—its exchangeability for goods,—but the value in the sense of the rental price is much more sensitive than the value in the sense of command over goods. The rental value of the money, considered as a tool of exchange, has become, in mod-

¹ Professor Pantaleoni makes the proper distinctions and assigns a descriptive name to each form of value. "We must, therefore, avoid confusing the *value of money*, or its power of exchange, with the *Value of the Use of Money*, or rate of discount. But still more must we guard against confusing the value of money and discount with *interest*, *i. e.*, the *Value of the Use of Capital*."—"Pure Economics," p. 227, n.

ern markets, the barometer of changes in the monetary supply. These changes in the long run react upon the power of money to purchase commodities, but they act more slowly.

The normal demand for money, therefore, as a tool of exchange, is indicated by the discount rate. Changes in the discount rate attract money for the special purposes for which it is needed by brokers and bankers, who have contracts to deliver money which they may be called upon to fulfill. Money often shifts back and forth under the attractions of changes in the discount rate without seriously affecting goods or their prices. It is only when the demand for money is the symptom of deeper economic disturbances,—in the misapplication or increased demand for circulating capital,—that changes in the discount rate are followed by changes in the value of money as measured in commodities. The two influences often accompany each other, but they are not inseparable. The rate of interest is the measure of the rental of capital, and it may happen that an increase in the supply of money is not accompanied by high prices nor low interest rates. As Mr. Beaure declares:¹

“The rate of interest was sufficiently high in the period from 1850 to 1860, when money became so abundant by the influx of the gold of California and Australia; it was on the contrary, very low in Western Europe during the period 1882-92, although the production of gold, the only actually effective money of the rich nations of Europe, was considerably restricted.”

The rate of interest in these cases comprehended the charge for the rental of capital as well as the incidental demand for the rental of money, and the demand for capital was large in the first instance in proportion to the supply and smaller at the later epoch. The conditions under which changes in prices of goods respond in a marked degree to changes in the volume of money are those of an economic crisis.

¹ *Théorie et Pratique de la Monnaie*, p. 33.

Examination of this demand, when it affects a whole community, will show that it is of a somewhat abnormal character. The reduction of prices which occurs at the time of an economic crisis is not due to trifling changes in the volume of metallic money in the country, nor even to a change in the volume of credit money directly proportioned to the metallic reserves. It is due to the derangement of the ordinary mechanism of credit and constitutes to a considerable extent a demand for money for hoarding rather than as a medium of exchange. The demand for money as a medium of exchange would naturally be greatly diminished by the cessation of commercial activity, but the demand for hoarding creates the seeming paradox that a country absorbs the largest volume of money when prices are most rapidly falling.¹

The distinction between the regulation of the movement of money by the discount rate rather than by the prices of commodities is a fundamental one. It is something more than the mere intervention of the discount rate as an intermediary between money and prices. The difference is fundamental, because of the distinction between money and capital. The discovery that money is a commodity, differing in only a few respects from other commodities in the market, has led some economists to endeavor to wipe out the distinction between the money market and the market for capital.² But looking to the function of money as a tool, like a freight car or a canal, it is apparent that the movements of money may be distinct from the movements of capital. In other words, there might be a demand for the tools of exchange

¹ M. Marcel Mongin points out the absurdity of the cruder view of the quantitative theory in the observation: "It logically follows that periods of commercial activity are of a nature to lead to a fall of prices, while periods of crises, when exchanges are few, when all industrial life relaxes, should coincide with a general rise of prices,—which is precisely the contrary of the reality."—*Revue d'économie politique* (February, 1897), xi, p. 150.

² Professor Leroy-Beaulieu, for instance, has deliberately adopted the title "Market for available capital" (*Marché des capitaux disponibles*), as caption of one of the departments of *L'Économiste Français*, instead of the expression "The money market," used in most English journals.

when there was a surplus of the objects of exchange, or there might be a surplus of the tools when there was a scarcity of the objects.

Money, therefore, has a distinctive function as a commodity, for which the demand in proportion to the demand for other commodities may sometimes be large and sometimes small. But this demand for money is capable of subdivision. It is one of the common errors of writers on monetary subjects to treat the demand for money as though it had only one form,—a demand for consumption. The subject is discussed, consciously or unconsciously, as though an exchange of money for goods by an intending consumer of the goods withdrew the money permanently from the market as it withdraws the goods. The fact is overlooked that those who receive money do not receive it for consumption, but only for exchanging it again for other goods.

There is a marked difference between exchange for consumption and exchange to sell again, even in the case of goods. Exchanges of goods may be separated into two classes,—exchanges by dealers between each other and exchanges between dealers and consumers. The existing stock is not reduced by exchanges between dealers. It is doubtful whether the value of commodities would be increased by frequent exchanges of this sort, if it was obvious that there was no increase in the demand for goods for consumption. What complicates the problem in regard to goods other than money is the fact that it is a real or anticipated demand for consumption which usually stimulates the demand for their exchange. The increase of the demand for goods for consumption increases the demands of the retailer upon the jobber, of the jobber upon the wholesaler, and of the wholesaler upon the manufacturer. What might occur if these demands were not demands for consumption is indicated to some extent by the produce exchanges and the stock exchanges. Securities are not consumed when they change hands. Many thousands of shares are bought and sold

without withdrawing them from the market. Changes in price occur as the result of increased earning power in the property which they represent or events which may affect this earning power. But if these influences are eliminated, it is doubtful if the purchases and sales between brokers affect the price in any such degree as purchases and sales by permanent investors, which may withdraw the securities from the market.

The demand for money in the form of an offer of goods is a demand from dealers rather than from consumers. There is, however, a form of consumptive demand for money, in the sense of its withdrawal from the market, which exercises a strong influence on its rental price and which sometimes reacts upon its value as measured by purchasing power. Such a demand increases when a general sense of prosperity prevails. When the volume of exchanges increases, the ordinary effect is an increase in the stocks of money held as tools of business, for every man will generally enlarge his balance of cash on hand if his business increases materially. The effort to enlarge these stocks of money,—their withdrawal from the market to hold aloof as a tool of business,—tends to raise their value. But it is *only* the effort to *enlarge* the stocks—it is not the maintenance of the stocks at a given size nor the mere exchange of them for goods—that has a tendency to raise the value of money, because neither of these latter processes involves the withdrawal of any money from the market.

Even this demand does not destroy the money in perpetuity as food is destroyed by being eaten, nor convert it into forms unavailable for exchange, as iron is converted by being built into a bridge or a warehouse. The money exists in a salable form, ready to be drawn into the market if a sufficient bid is made for it through discount rates or the prices of goods. The other form of the demand for money, for carrying on exchanges, has very little of the nature of a consumptive demand. It is only a demand for the use of

money for executing a contract to deliver money. In the money market, as on the produce and stock exchanges, such contracts are rarely enforced. When they are enforced in the case of money, it is because other articles have lost some of their exchangeability. Money then has a high value in its proper capacity as a tool of exchange.

As a tool of exchange, like freight cars or highways, there may readily be a limit to the amount of money which may be profitably employed in a community. The fable of Midas, perishing amidst his wealth, because his wish had been gratified that everything he touched might be turned to gold, shows that even the ancients appreciated the essentially subordinate character of money in gratifying human needs.¹ If the community required every year \$100,000,000 in gold for carrying on transactions, and the gold were consumed in the process of making exchanges, a constant supply of not less than \$100,000,000 would be necessary to maintain existing conditions. But in fact the pre-existing gold is not consumed, but remains in the community ready to do its old work, just as a freight car remains available for a new load, after discharging its last one. Transactions of hundreds of millions of dollars are made over and over again by the use of the same coins of gold and silver, which performed similar transactions the year before, ten years before, and even a century ago. The pieces of gold may be remelted and restamped, but the physical gold remains the same in its character and quantity, except for the small percentage of loss due to wear and tear.

Silver and gold, therefore, differ from most circulating capital in this respect,—that for monetary uses they are not produced to be consumed, but only to be employed. Money engaged in carrying on transactions does not disappear with the consummation of the transactions. If such transactions

¹ Plato and Aristotle even went beyond the fact and assumed that any article declared by law to be the medium of exchange would serve the purpose. Aristotle declared that silver had value by law and not by nature,—V. Souchon, *Les Théories Économique dans la Grèce Antique*, p. III.

multiply, it does not necessarily follow that the necessity for money has increased. The rule governing the matter is thus laid down by Professor Arnauné:¹

"The demand for the precious metals for the making of money is naturally governed by the needs of the circulation. When transactions multiply and quicken, a greater quantity may be required of that instrument for moving wealth called money, just as a greater number of vehicles may be required to assure the transportation of material things. Nevertheless, a considerable increase may happen in the business of a country without an increase in the demand for the precious metals for coinage in the same proportion or even to a notable extent. It is even possible that the demand may diminish. It may be possible to provide for the needs of the circulation by means of other instruments of exchange, like bank bills, checks, and in general all negotiable or transferrable securities."

Ricardo laid down the rule that "gold and silver, like all other commodities, are valuable only in proportion to the quantity of labor necessary to produce them, and bring them to market."² This rule, that value is determined by cost of production, must in the end affect the production of every commodity, but is a rule of much slower and less traceable working in the case of money than with other articles. The immediate exchange value of articles in the market is determined by demand and supply. In the language of an English student of monetary problems:³

"The position of a commodity in the scale of value is the outcome of a comparison between the demand for it and its supply. Which of the two contributes the larger share to its value depends, chiefly, upon the nature of the commodity. The value of a perishable commodity, such, for example, as fish, or even grain, the demand for which varies within narrow limits, fluctuates in prompt accord with the fluctuations of the supply. When, like the precious metals, a commodity is practically imperishable, its stores act as a distributing reservoir and its

¹ *La Monnaie, Le Crédit, et le Change*, p. 19.

² "Principles of Political Economy," p. 340.

³ Memorandum by Mr. R. B. Chapman, C. S. I., Secretary to the Government of India in the Department of Finance and Commerce, submitted to the Indian Currency Committee. Fifty-third Congress, Sen. Misc. Doc. 23, 650.

value fluctuates with the level of the reservoir, and is but slightly, if at all, affected by the supply, the volume of which bears a constantly diminishing proportion to the reservoir which it feeds. In these cases it is the demand which chiefly governs the value, the supply being always an offer, and, under ordinary circumstances, practically free from fluctuations."

Cost of production becomes a factor in determining value when the supply of any article becomes so far excessive as to reduce the value in exchange below the cost of production. Production may then be arrested and the supply reduced, with the ultimate effect of raising the exchange value of the supply in the market.¹ This time comes in the case of gold and silver when the increased cost of machinery and labor make unprofitable the extraction of the precious metals from the poorer mines. Such mines may then be abandoned and production diminished. Production will be stimulated again as the diminution of the supply makes it unequal to the demand and raises the marginal value as expressed through the discount rate or through prices. Such influences have been felt upon the production of gold and silver on several occasions. Gold acquired increased purchasing power by changes in the cost of producing goods which followed the nearly complete equipment of the great civilized countries with the machinery of production and exchange about 1870.² The cost of mining fell and the efficiency of mining machinery was increased. This meant that more gold could be produced than before by the same expenditure of labor and

¹ It is stated that "production may then be arrested," rather than that it actually is arrested, because of the many cases under modern industrial conditions where manufacturing is continued without profit or even at a loss. As expressed by Mr. David A. Wells, "Examples are familiar of joint stock companies that have made no profit and paid no dividends for years, and yet continue active operations. The shareholders are content if the plant is kept up and the working capital preserved intact."—"Recent Economic Changes," 73.

² It should be noted that the decline in the cost of goods was not merely a decline in price as measured in money, but that less labor was required to produce a given product as the result of the increased efficiency of machinery. *Vide* "The Economic Basis of Imperialism," by the present writer in *North American Review* (September, 1898), cixvii, 330.

capital. Not only could more gold be produced, but it had the power of purchasing more commodities, because of their fall in price through increased facility in their production. The case was different with silver, because its marginal utility as a medium of exchange was less than that of the more compact and transportable metal, gold. The operation of value upon silver production was that described by Mr. Smart:¹

"After 1873 mine after mine was abandoned, although the ores were as rich and the reefs as plentiful as ever. What was the cause? Simply that silver was discarded as currency in certain countries; that is to say, silver fell in the estimation of great communities, and the loss of value was carried back till the price realized by the virgin silver was not enough to pay for the mining of it."

The usual operation of changes in the volume of money upon the discount rate and the manner in which they may finally affect the prices of goods is set forth by Professor Hadley thus:²

"If there is a temporary deficiency of the money reserve, those who have not provided themselves with adequate means of making payments will try to make use of the gold of individuals or nations who have provided themselves with a slight margin above their immediate wants. This they will do by offers of more than the usual rate of interest on short time loans. If this high rate of interest on short time loans lasts so long as to neutralize the profit obtained from holding capital in other forms, people will try to sell their goods and securities in order to get gold. This will diminish the price of goods and increase the purchasing power of gold. This change will usually cause some gold to be imported from other countries, and some to be withdrawn from the arts for conversion into coin. Under a free coinage system this process will continue until the stock of gold available for use in the arts has become so reduced and the stock of coin so increased that the marginal utility of an ounce of gold used in the arts is as large as the marginal utility of the things which an ounce of coined gold will purchase. The converse case of excess in money reserve shows corresponding effects. If it is temporary, the rate of commercial interest on short time loans falls lower than that on industrial

¹ "An Introduction to the Theory of Value," p. 69.

² "Economics," p. 200.

investments. If it is local, it operates to send gold coin away from the place where it is redundant, for the sake of obtaining higher prices somewhere else. If it becomes universal, it causes gold coin to be melted down for use in the arts, until the diminishing utility of an ounce of gold bullion and the increasing utility of the things purchased by an ounce of gold coin reach a common level."

This exposition of the true character of the demand for money,—for settling balances where contracts for money are not cleared against each other for goods,—permits an impartial examination of one of the controverted subjects of monetary science,—the quantitative theory of money. This theory, as defined by Mr. John Stuart Mill, is that "the value of money, other things being the same, varies inversely with its quantity, every increase of quantity lowering the value, and every diminution raising it, in a ratio exactly equivalent."¹ How this ratio is maintained, Mr. Mill states thus:²

"As the whole of the goods in the market compose the demand for money, so the whole of the money constitutes the demand for goods. The money and the goods are seeking each other for the purpose of being exchanged. They are reciprocally supply and demand to one another."

It is fair to say that Mr. Mill limits this law to "a state of things in which money, that is, gold or silver, is the exclusive instrument of exchange, and actually passes from hand to hand, at every purchase, credit in any of its shapes being unknown." Within these narrow limits, the value of money might vary "inversely with its quantity," but this would be the case equally with wheat or skins. They would vary in exchange value inversely as their quantity, if all changes in demand were excluded and if their holders were compelled to deliver up the entire amount of them for

¹ Mr. Mill admits that "rapidity of circulation" is an important element in determining the purchasing power of money. He lays down the proposition that "the quantity of money in circulation, is equal to the money value of all the goods sold, divided by the number which expresses the rapidity of circulation."—"Principles of Political Economy," b. iii, ch. viii, par. 3. (ii, 32).

² "Principles of Political Economy," ii, 30.

fixed quantities of other commodities. The error of conclusions based exclusively upon the law of the quantitative value of money is that it takes no account of other economic laws, which are inevitably set in operation by changes in the quantity of money available for exchanges.

The elevation of the quantitative theory of money to the rank of the one law exclusively dominating its value is opposed to the law of marginal utility, which is one of the most important laws affecting the employment of money. It is this law which makes it impossible that other conditions should remain the same when the supply of money is increased or diminished. The quantitative theory, when too rigidly applied to practical conditions, seems to assume that the whole demand for money is shut within a single market, in every part of which the relation of money to other things is the same. This is far from being the case. If new gold comes to a community already well supplied with the tools of exchange, it becomes surplus gold upon the market, available for increasing bank reserves and operating upon the rate of discount, but not transfused into the previously existing stock of money with the result of raising prices in the ratio of the increased quantity.¹ What has usually happened to this gold,—what happened notably after the Californian and Australian gold discoveries,—was that it went to communities where the existing currency supply was insufficient.

Slight changes in prices contribute to increase the ability of ill-equipped communities to acquire gold, by giving them a slightly larger surplus capital, which they could afford to invest in the tools of exchange, but such changes

¹ This fact exposes the defect of the precise mathematical reasoning of Professor Walras. He admits that "from one moment to another all the elements of the problem are modified," but maintains that at a given moment, other things being equal, if the quantity of money increases or diminishes, prices will rise or fall in proportion.—*Théorie de la Monnaie*, p. 46. But throughout his reasoning the fact appears to be ignored that all the new money is not at once offered against all the goods offered in exchange for money.

in prices are far from having a fixed mathematical ratio to the new supplies of gold. Money is highly necessary in an organized community, but it is not so necessary as food, clothing, and shelter. The law of the relative utility of money and other objects, operating through the discount rate as well as the prices of goods, usually results in the retention of the goods in preference to the money by communities which have little surplus capital for investment in the medium of exchange. This being the case, it is doubtful whether the value of the metals responds as promptly to local changes in the supply as the value of more necessary articles, like corn and wheat.

The too exact application of the quantitative theory in historical comparisons is based upon the erroneous assumption that money economy,—the use of money and of credit expressed in terms of money,—prevails to an extent absolutely uniform throughout the economic world. This is far from being the case. Comparisons in the value of money at different periods cannot be made without taking account of the narrow field for the employment of money in early ages. There was no effective demand for money, when the peasant was not free to change his abode, when he paid rent measured in kind rather than in terms of money, and when he never had opportunity to use money in organized markets. A large increase in the money supply, such as occurred after the discovery of America, and again after the opening of the Californian mines, was not spread in a uniform manner over the communities then using money, but having become a cheaper and more abundant tool of exchange than before, gradually found a new market in communities which had not formerly been able to avail themselves of such a tool at all. There is a wide difference between modern money-using communities and the conditions of the latter days of the Roman Empire, or any period of the middle ages, even down to the middle of the present century, which vitiates rough and ready calculations of the

changes in the value of money due to the changes in the quantity.¹

When the additions to the stock of metallic money are large and permanent, they act finally in some degree upon prices, but this action cannot be exactly measured by any rule of mathematics, and is often less potent than many other influences which affect commodities. It requires, in the language of Professor Leroy-Beaulieu, "a very long time for the increase of the money supply to traverse all the channels of circulation and produce a general and uniform elevation of the level of prices."² The ordinary commercial movements of money are determined by the special demand for it as a tool of exchange, and through the mazes of these movements the quantitative theory is a confusing and often misleading guide. Professor Hadley well expresses the truth on the subject when he says that, under a system of free coinage of the standard metal, changes in the quantity of money³

"Are at once a cause and effect of changes in general price level. If we have to choose between two ways of looking at the matter, there is in the majority of cases less error in treating them as an effect than as a cause. The amount of production and coinage of gold is so far affected by changes in the general price level that it tends to adapt the supply of money to the demand and mitigates changes in general prices far oftener than it causes them."

The notable cases of a visible influence of the supply of the precious metals upon prices have been the additions to the supply which took place in the sixteenth century and

¹ "Unless an object is more or less within your range and reach, this effective demand cannot exist. In a condition of natural economy,—the condition which was dominant in Europe so far as the masses of the population are concerned from the fifth to the fifteenth century,—money could not be an object of effective desire; for most men it was practically out of reach altogether. Monetary movements there were, but they did not touch the ordinary routine of peasant life; and hence it is impossible to use money in any way to measure what their condition and requirements were."—Professor W. Cunningham, *Quarterly Journal of Economics*, July, 1899, xiii, p. 382.

² *Traité d'Économie Politique*, iii, p. 151.

³ "Economics," p. 198.

again after the discovery of the mines of California. But on neither of these occasions did the value of money in exchange vary in "a ratio exactly equivalent" to the increase of the supply. Prices rose in a marked ratio during the sixteenth century. The influence of the new gold and silver was not felt in England, according to Adam Smith, until about 1570, but from that time prices rose so rapidly that within seventy years fixed incomes had shrunk 75 per cent in their power of commanding the means of living. Mr. Jacob computed the increase in prices at the ratio of 470 to 100. When the great outpouring of the California mines took place, many economists anticipated another rise of equal proportions. Mr. Jevons wrote a paper as late as 1863, in which he predicted that the depreciation in the purchasing power of gold would cause a rise in prices of from 40 to 50 per cent. When the new gold had produced its full effect and had become again more valuable than silver at the coinage ratio, Mr. Jevons reviewed the ground he had traversed in 1863 and reached the conclusion that the rise of prices due to the increase of the gold supply was only between 6.76 and 16.2 per cent, and averaged about 10.25 per cent.¹

The discussion of the value of money as a tool of exchange has proceeded thus far upon the assumption that money is free to move from market to market under the attractions of the demand, as expressed primarily through the discount rate, and that the supply is limited only by the world's existing stock and by the cost of production. This is the normal condition where the standard metal can be converted without limit into coins. Money may then be absorbed by hoarding

¹ *Vide* an article by the author, "Effect of the New Gold upon Prices," *North American Review*, November, 1897, p. 540. M. Block seems disposed to deny that the effect of the new gold was quantitative in any degree. He says, "Prices rose without doubt during this period, but as much by the activity of the demand for merchandise (the competition of buyers) as by the abundance of the precious metals. It is because the demand has become less active since the creation of an immense plant (*outillages*) that prices have fallen since 1880."—*Les Progrès de la Science Économique*, ii, p. 48.

and by an enlarged demand for current use, but it cannot be cornered in one market without producing an inflow, under the stimulus of increased discount rates, from every other market where the metal is found. The case is otherwise when an article of special character and limited supply is made by law the sole legal tender for the payment of debts. This endowment of government paper or of coins restricted in amount with the legal tender quality has a limited potency which has puzzled some economists. The reason is that they fail to apprehend the nature of the demand for money. Contracts to deliver money in countries having a depreciated standard are usually expressed in this standard. The demand for the legal tender money is measured, as in the case of gold, by the amount required to settle balances which are not settled by clearings. But in this case the supply is limited. So long as it remains limited, other things being equal, the money will have a value determined almost wholly by the demand for it. The manner in which the law of supply and demand operates in such cases is thus defined by Professor Leroy-Beaulieu:¹

“ This phenomenon will not be in opposition to the character of merchandise which belongs to money. The money under consideration will be sought because it will be useful in exchanges and it will be difficult of acquisition because it will be limited in quantity. It will be equal in value to gold from the combined operation of these two causes,—the need for it and the difficulty of obtaining it. It will take a place in that large class of articles, already spoken of in treating of value, which, being no longer capable of reproduction, have a value dependent,—not upon their cost of production, which relates only to the past, but only upon supply and demand. The demand in this instance will be represented by the need for this money for transactions and the supply will be limited, by the hypothesis, or will increase only in proportions and according to rules fixed and known in advance.”

The operation of the law of limited supply upon the value of coins has been illustrated in a remarkable manner since the depreciation of silver bullion during the last two decades.

¹ *Traité d'Économie Politique*, iii, p. 133.

The closing of the mints of the countries of the Latin Union to the free coinage of silver has permitted their silver coins to circulate at par with gold for nearly twenty years, in the face of a constantly declining price of silver bullion. The actual circulation of Belgium and Holland has come to consist very largely of silver coins, but they have been maintained at par with gold, partly by the limitation of their quantity and partly by the policy of the national banks in both countries in furnishing gold freely for export and thereby maintaining the equality of their silver money with gold in international trade. A similar policy was adopted by the British government for British India in 1893 by the suspension of the coinage of silver rupees and the adoption of a rate of exchange about a third less than the gold parity of the rupee, but above its value in silver bullion. The government of British India did not entirely succeed in maintaining the rate of exchange which was adopted, but the silver rupee never declined to the bullion value of the metal of which it was composed.¹

The fact that paper money can be made to circulate under certain conditions when it is irredeemable at only a little less than its nominal value has led to some of the most dangerous errors of monetary science. It has been assumed that, because a limited quantity could thus be made to circulate for value, an increased or an unlimited quantity could be put in circulation under the same conditions. The error in this calculation has arisen from the fact that only a limited number of the tools of exchange was required to do the business of the community and that it was the limitation of the quantity which enabled any quantity to circulate for

¹ The operation of the law of supply and demand in these cases should not be interpreted as an implication that the government has the power to give value by its decree to any article in any quantity. It has a very limited power, by creating a market and therefore a demand, to raise the value of a restricted quantity of pieces of metal for a certain use, but its power ceases when the amount of such coins becomes excessive. This fact renders it impossible to maintain at par with each other two metals of unequal value when there is no limit upon the coinage of either metal.

value. An irredeemable paper currency of fixed amount is subject to the advantages of monopoly of supply. The fact that no additional quantity can be obtained removes such money from the operation of the laws of cost of production upon supply and greatly increases its value when there is a large demand. The demand for money is in a sense in all communities the demand of short sellers. In other words, thousands of persons are under contracts to deliver money which is not in their possession. In communities whose currency is regulated by the ebb and flow of the metallic money of the world, there can rarely be any question of their ability to obtain money to fulfill contracts for the delivery of money if they are willing now and then to pay a slight advance in the discount rate. The case is otherwise with money of a kind whose quantity is limited, which exists in no other community, and which is not capable of increase by the operation of demand upon cost of production. Money of this kind must be had to execute certain contracts to deliver money and it can only be had at the terms named by the holders of it. These holders are the banks and exchange houses, who speculate in exchange and regulate the price of foreign exchange in depreciated money by the current estimate of the value of the money and by their control over the supply. If the quantity is insufficient or barely sufficient to meet the demands of a community for the tools of exchange, these exchange houses will be able to sell it for very nearly its nominal value in gold. But when the quantity becomes excessive,—aside from the usual collateral element, that the probability of future redemption at par is diminished,—the supply becomes in excess of the demand and the marginal utility of each piece responds to the marginal utility of the excessive supply. The whole volume of the paper money is depreciated and continues to depreciate as the quantity is increased.

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